

quitoes and overlook the other discomforts of botanizing in a muddy and oozy district.

The half-day at Winnegance proved a brilliant finish for our outing in Maine, but as we look back over the entire summer, to the Washington County coast, the Aroostook and Meduxnekeag Valleys, and Caribou Bog, we feel that we did well to visit these regions, for besides what is here related we made profitable studies on a score or more of taxonomic problems, some of which are already worked out, others awaiting further study. We also did what we could to verify the accounts formerly given of the vegetation of eastern Maine; and, though "X" seems from his over-enthusiastic language to have been a possible forerunner of the Maine coast land-boomer, his estimate was perhaps no more inaccurate than that of William Oakes. At any rate, if Oakes's condemnation of the State of Maine has not already been proved too sweeping, we feel that the above notes and those which follow in more compact form are evidence that he erred in judgment when, in 1828, he wrote to Robbins that he was "convinced that no great accessions to the N. E. Flora, and of absolutely new plants hardly any, are to be expected from the State of Maine."

(*To be continued.*)

A NEW HYBRID CORNUS (*CORNUS RUGOSA* × *STOLONIFERA*).

ALFRED REHDER.

IN the summer of 1906 a specimen was received at the Arnold Arboretum of a *Cornus* collected by Mr. B. H. Slavin in Seneca Park, Rochester, New York, and accompanied by a note saying that it seemed to be different from *Cornus stolonifera*. A plant sent to the Arboretum in the spring of 1908 flowered and fruited last year, which gave me the opportunity to study also living material. I arrived at the conclusion that this dogwood could hardly be anything else than a

hybrid between *Cornus rugosa*¹ and *C. stolonifera*, as its characters are intermediate between these two species which grow together in the locality where a few individuals of the form in question were found. Also the fact that the pollen of this supposed hybrid contains a large percentage of incompletely developed grains is in favor of the hybrid origin of this plant.

This is the second hybrid observed in the genus *Cornus*; the first being a cross between *Cornus candidissima* Marsh. (*C. paniculata* L'Hérit.) and *C. obliqua* Raf. (*C. Purpusi* Koehne) described by me some years ago as *C. Arnoldiana*.² As the second cross is now also in cultivation at the Arboretum and will be propagated and distributed, it seems advisable to bestow on it a binomial designation and it may appropriately bear the name of its discoverer.

Cornus Slavinii (*C. rugosa* × *stolonifera*) n. hybr. Tall shrub of the habit and aspect of *C. stolonifera* but with the stems more strictly upright; young branchlets greenish at first but becoming bright purple toward the end of the year and marked with dark longitudinal specks, remaining purple during the second and third year and furnished with small lenticels. Leaves oval or ovate to broadly ovate, acuminate, generally rounded at the base, 6–12 cm. long and 4 to 7 cm. broad, dark green above and furnished with scattered hairs, glaucous beneath and more or less villous, the hairs of the leaves of the sterile shoots being more appressed, while those of the flowering shoots are more spreading and villous particularly on the veins. Inflorescence mostly hemispherical with opposite slightly distant branches and a distinct central axis, covered with a brownish villous tomentum. Flowers appearing about the middle of June, nearly pure white. Fruits end of July, subglobose or ovoid, pale blue, bluish white or nearly

¹ *Cornus rugosa* Lamarck, Encycl. Méth. II. 115. 1786, cf. also III., p. IV. (*C. circinata* L'Héritier, *Cornus*, 7, tab. 3. 1788). Though almost universally known as *C. circinata*, the application of the rule of priority makes it necessary to give preference to the name *C. rugosa* Lamarck which for some inexplicable reason seems to have been entirely overlooked until quite recently. The same would apply to *C. racemosa* Lamarck (l. c. 116), which has priority over *C. paniculata* L'Héritier, if *C. candidissima* Marshall (Arb. Am. 35. 1785) is not considered valid on account of its insufficient description.

² *Cornus Arnoldiana* Rehder in Sargent, *Trees & Shrubs*, I. 79, tab. 40. 1903. There can be hardly any doubt that *Cornus Purpusi* Koehne, figured in *Trees & Shrubs* I. 77, tab. 39, is identical with *Cornus obliqua* Rafinesque (*Western Review* I. 228. 1819); Rafinesque gives there a detailed description extending over a whole page, while in the place usually quoted (*Ann. Nat.* 13. 1820) the description is much shorter. I am still of the opinion that *C. obliqua* should be considered a species distinct from *C. Amomum*; its characters being well marked and its geographical range different. Only in New England, where the ranges overlap, do intermediate forms occur.

white, 6–8 mm. high; stone ovoid, oblique, slightly compressed, abruptly pointed at the apex, marked with longitudinal lines and about 5 mm. high, sometimes faintly ribbed.

The hybrid resembles in habit *Cornus stolonifera*, but is more upright; the branches are deep purple as in that species, but marked during the first year with longitudinal short dark lines, but smaller, less numerous and less conspicuous as they are in *C. rugosa*. The leaves resemble in shape those of *C. rugosa*, but are distinctly glaucous beneath; their pubescence is more like *C. stolonifera* in the sterile shoots and more like *C. rugosa* in the flowering shoots, also as regards the pubescence of the upper surface of the leaves which in *C. stolonifera* consists of forked hairs with almost equal appressed arms, while in *C. rugosa* the arms are unequal with the longer arm spreading and wavy or the hairs are simple, particularly on the veins, forming a villous tomentum soft to the touch. On the lower surface the epidermal cells bear papillae with connecting ridges. In *C. stolonifera* and the hybrid these are more closely set around the stomata and form rings, while in *C. rugosa* they are more evenly distributed over the whole surface. The inflorescence resembles more that of *C. stolonifera*, while in *C. rugosa* the ramifications are nearly whorled and a central axis is hardly distinguishable. The color of the flowers is between the pure white of *C. stolonifera* and the creamy white of the *C. rugosa*, and the time of flowering lies between the two. The fruits are usually ovoid as in *C. stolonifera*, but rarely white, mostly more or less bluish; the stone shows the longitudinal lines of *C. stolonifera*, but is less compressed and sometimes faintly ribbed; from *C. rugosa* it differs in being somewhat compressed, higher than broad and distinctly pointed at the apex.

NEW YORK: Seneca Park, Rochester, June 9, 1905, August 1, 1905, *B. H. Slavin*; July 15 and 31, 1906, *J. Dunbar*; June 16 and July 25, 1907, *B. H. Slavin*. MAINE: Piscataquis Co., valley of the Piscataquis River, gravelly shore, Dover, July 19, 1895, *M. L. Fernald*, No. 305. I have little doubt that the Maine specimen represents the same hybrid, particularly as the two supposed parent species also occur in the locality where it was collected.

The villous pubescence of the under surface of the leaves, though the most obvious and prominent character to distinguish the hybrid from *Cornus stolonifera*, must be used with some caution, for toward the northeastern limit of the range of that species forms occur which also

have the pubescence of the leaves at least partly villous. It is, however, hardly advisable to consider these specimens as representing a distinct variety or form, as the villous character of the pubescence does not seem to be very constant; sometimes the lower leaves of a shoot show a distinctly villous pubescence, while in the upper leaves all the hairs are straight and appressed. In the herbarium of the Arnold Arboretum and in the Gray Herbarium I have noted the following specimens as having the leaves on the under surface at least partly villous. NEWFOUNDLAND: St. John's, Aug. 1, 1894, *B. L. Robinson & H. Schrenck*, No. 217; Lark Harbour, August 7, 1896, *A. C. Waghorne*; Grand Lake, July 25–Aug. 15, 1906, *Owen Bryant*. QUEBEC: Roberval, Lake St. John, Aug. 22, 1895, *J. G. Jack*; Little Métis, July 17, 1906, *James Fowler*. ONTARIO: Kingston, Wolf Island, July 20, 1898, *James Fowler*.

ARNOLD ARBORETUM.

TWO NEW SPECIES OF UROMYCES ON CAREX.

FRANK D. KERN.

THE number of American species of *Uromyces* on *Carex* is apparently small compared with the number of similar species of *Puccinia*. Up to the present time only four such species of *Uromyces* have been described while there are more than four times as many such species of *Puccinia* known. A preliminary study indicates that there occur some *Uromyces* forms which have been previously undetected.

The *Carex* rusts have usually been considered especially difficult to distinguish and for that reason, perhaps, have not been so well studied or collected as the rusts of many other phanerogamic groups. There is a great similarity in the telial stages of these rusts and the failure to recognize properly the species may be the result of placing too much emphasis on the importance of this stage. Recent studies indicate that it is usually possible to find more distinctive morphological characters in the uredinia. Size of the urediniospores, color and thickness of walls, surface markings, and especially the number and arrangement of the germ-pores may all be taken into account.